WHAT IS CLAIMED IS:

1. An inhibitor comprising an isolated, recombinant or synthetic polypeptide that inhibits binding between a TRP channel protein and a TRP-associated protein.
2. The inhibitor of claim 1, wherein the TRP-associated protein comprises at least one PDZ domain.
3. The inhibitor of claim 2, wherein the TRP-associated protein comprising at least one PDZ domain is selected from the group consisting of RIM-2, Mint 1, INADL, Syntrophin 1 alpha, SITAC-18, LIM mystique, ZO-1, PAR3L, MAST2, PAR3, and novel serine protease.
4. The inhibitor of claim 1, wherein the TRP channel protein is human TRPM7 or mouse TRPM7.
5. The inhibitor of claim 2, wherein the C-terminus of the polypeptide comprises a PDZ-Ligand sequence.
6. The inhibitor of claim 5, wherein the PDZ-Ligand sequence comprises the amino acid sequence X-L/I/V-X-L/V/A.
7. The inhibitor of claim 6, wherein the PDZ-Ligand sequence is STNSVRLML [SEQ ID NO:260] or ATNSVRLML [SEQ ID NO:384].
8. The inhibitor of claim 5, wherein the C-terminus of the polypeptide further comprises a cell membrane transduction domain.
9. The inhibitor of claim 8, wherein the cell membrane transduction domain is selected from the group consisting of HIV tat, Drosophila antennapedia, herpes simplex virus VP22, anti-DNA CDR2, anti-DNA CDR3, polyarginine and penetratin.
10. The inhibitor of claim 9, wherein the cell-membrane transduction domain is HIV tat YGRKKRRQRRR [SEQ ID NO:257].
11. The inhibitor of claim 10, wherein the inhibitor comprises the amino acid sequence YGRKKRRQRRRSTNSVRLML [SEQ ID NO:258] or YGRKKRRQRRRATNSVRLML [SEQ ID NO:380].
12. A pharmaceutical composition comprising the inhibitor of claim 1 and a physiologically acceptable carrier, diluent or excipient.

13. An inhibitor comprising a nucleic acid sequence capable of inhibiting the expression of a TRP channel protein post transcriptionally.
14. The inhibitor of claim 13, wherein the TRP channel protein is TRPM7.
15. The inhibitor of claim 14, wherein the nucleic acid sequence is selected from the group consisting of nucleotides 5152-5172 of Genbank accession # AY032951, nucleotides 5023-5043 of Genbank accession # AY032951 and nucleotides 1318-1338 of Genbank accession # AY032951.
16. The inhibitor of 15, wherein the nucleic acid sequence is coupled to a delivery system selected from the group consisting of an adenovirus vector and an adeno-associated virus vector.
17. The inhibitor of claim 16, wherein the nucleic acid sequence is coupled to an adenovirus vector and comprises the nucleic acid sequence GAATTCATATTTGCATGTCGCTATGTGTTCTGGGAAATCACCATAAA CGTGAAATGTCTTTGGATTTGGGAATCTTATAAGTTCTGTATGAGAC CACTCGGATCCGAGTGCATGACTGGTGAATTTCAAGAGAATTCACC AGTCATGCACTCTTTTTGGAAAAGCTT [SEQ ID NO:381].
18. A pharmaceutical composition comprising an inhibitor of claim 13 and a physiologically acceptable carrier, diluent or excipient.
19. A method of treating mammalian cell injury, comprising introducing a modulator of binding between a TRP channel protein and a TRP channel associated protein into a cell.
20. The method of claim 19, wherein the cell is a damaged neuron.
21. The method of claim 19, wherein the modulator is a polypeptide.
22. The method of claim 19, wherein the modulator is a fusion polypeptide.
23. The method of claim 19, wherein the modulator is a small interfering RNA.
24. The method of claim 19, wherein the TRP channel protein is TRPM7.
25. The method of claim 24, wherein the modulator has a C-terminal amino acid sequence of LML.
26. A method of reducing the damaging effect of ischemia or traumatic injury to the brain or spinal cord in a mammal, said method comprising treating said mammal with a non-toxic, damage-reducing, effective amount of a modulator

of binding between a TRP channel protein and a TRP channel associated protein.

27. The method of claim 26, wherein the TRP-associated protein comprises at least one PDZ domain.

28. The method of claim 27, wherein the TRP-associated protein comprising at least one PDZ domain is selected from the group consisting of RIM-2, Mint 1, INADL, Syntrophin 1 alpha, SITAC-18, LIM mystique, ZO-1, PAR3L, MAST2, PAR3, and novel serine protease.

29. The method of claim 26, wherein the TRP channel protein is TRPM7.

30. The method of claim 26, wherein the modulator is a polypeptide.

31. The method of claim 30, wherein the C-terminus of the polypeptide comprises a PDZ-Ligand sequence.

32. The method of claim 31, wherein the PDZ-Ligand sequence comprises the amino acid sequence X-L/I/V-X-L/V/A.

33. The method of claim 32, wherein the PDZ-Ligand sequence is STNSVRLML [SEQ ID NO:260] or ATNSVRLML [SEQ ID NO:384].

34. The method of claim 31, wherein the C-terminus of the polypeptide further comprises a cell membrane transduction domain.

35. The method of claim 34, wherein the cell membrane transduction domain is selected from the group consisting of HIV tat, Drosophila antennapedia, herpes simplex virus VP22, anti-DNA CDR2, anti-DNA CDR3, polyarginine and penetratin.

36. The method of claim 35, wherein the cell-membrane transduction domain is HIV tat YGRKKRRQRRR [SEQ ID NO:257].

37. The method of claim 36, wherein the inhibitor comprises the amino acid sequence YGRKKRRQRRRSTNSVRLML [SEQ ID NO:258] or YGRKKRRQRRRATNSVRLML [SEQ ID NO:380].

38. The method of claim 26, wherein the modulator is a small interfering RNA.

39. A method of controlling the concentration of Ca^{2+} -dependent signaling molecules in the vicinity of ion channel pores of cells in vivo to prevent the diffusion of toxic amounts of said Ca^{2+} influx to prevent the triggering of

neurotoxic phenomena, said method comprising administering an effective, non-toxic amount of a modulator of TRP channel proteins or cellular protein interaction domains that effect said TRP channel protein interactions.

40. A method for determining whether a test compound modulates binding between a TRP channel protein and a PDZ domain-containing polypeptide, comprising:

i. contacting a TRP channel PDZ-Ligand sequence with a PDZ domain-containing polypeptide; and

ii. measuring the amount of complex formed between the TRP channel PDZ-Ligand sequence and the PDZ domain-containing polypeptide.

41. The method of claim 40, wherein the PDZ domain is a PDZ domain selected from the group consisting of RIM-2, Mint 1, INADL, Syntrophin 1 alpha, SITAC-18, LIM mystique, ZO-1, PAR3L, MAST2, PAR3, and novel serine protease.